On the symmetry of the equations of linear harmonic current circuits and the properties following from it.

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It is shown that the equations of a linear harmonic current circuit have symmetry, and the possibility of their simplification (written in complex form) follows from this symmetry. It is shown that due to this symmetry, the equations of the instantaneous power balance in the nodes and in the branches of the circuit are divided each into two independent equations that correspond to the equations of the complex power balance in the nodes and in the branches, i.e., the laws of the complex power balance in the nodes and in the branches of the circuit follow from the corresponding laws of the instantaneous power balance. The physical meaning of complex power is found – it is an image of instantaneous power.

Key words: symmetry, invariant, linear electrical circuit, complex power.